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Patient compartment of negative pressure ambulance — Technical specifications

Compartiment patient pour ambulance à pression négative — Spécifications techniques

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Foreword

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Introduction

According to the data from World Health Organization, there have been large-scale outbreaks of respiratory infectious diseases in the past decades, such as SARS, bird flu, H1N1, MERS, CoVID-19, etc., posing a huge challenge to the public health system. In the fight against respiratory diseases, the concept of negative pressure ambulances was initiated by public health and epidemic experts. For the establishment and improvement of the public health emergency rescue system, we have studied the negative pressure ambulance products with global experts.

A negative pressure ambulance is defined as an ambulance fitted with negative pressure and sterilization equipment, used for the care, monitoring and transportation for respiratory disease patients. It provides treatment for patients, isolates sources of transmission and prevents cross infection effectively. Due to the highly contagious nature of respiratory viruses, conventional ambulances are not up to the task of transporting. Compared with conventional ambulances, negative pressure ambulances can effectively block airborne transmission, greatly reduce the risk of infection for medical and public personnel, as well as the contamination of the surrounding environment, effectively ensuring the safe transport of respiratory infection patients.

As a special type of ambulance, the difference between a negative pressure ambulance and any other conventional ambulance mainly lies in the patient compartment, which has functions such as blocking the source of infection, disinfecting and sterilizing, preventing cross-infection and many others. In the state of the art, there are no special, systematic and unified technical requirements for negative pressure ambulances globally. During the production and use phase, the absence of unified regulations and unbalanced standards for the negative pressure ambulance, especially for its patient compartment, causes great trouble to the production and leading the risk of use. For the safe use of negative pressure ambulances, it is of great significance to develop a technical specification for the patient compartment of negative pressure ambulances in the ISO system as a global reference in line with their differences and characteristics. This document mainly involves the special requirements and test methods of the patient compartment, including sealing and isolation, negative pressure, ventilation rate, directional airflow, sterilization system, filtration, and sterilization device of the negative pressure system. Relative technical standards and test methods are fully in accordance with the needs of the medical and health industry, to improve the technical level of the products and provide safer services in the transfer of patients, and promote effective and timely treatment of patients in the epidemic environment.

In summary, forming a set of global, unified, formal negative pressure ambulance technical specifications of patient compartments could have a positive impact on controlling infectious respiratory diseases around the world, reduce the risk of transmission and can better protect medical workers and the surrounding environment.